

Decision **PROPOSED DECISION OF ALJ BUSHEY** (Mailed 12/6/2013)

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking on the  
Commission's Own Motion to Adopt New  
Safety and Reliability Regulations for Natural  
Gas Transmission and Distribution Pipelines  
and Related Ratemaking Mechanisms.

Rulemaking 11-02-019  
(Filed February 24, 2011)

**DECISION ESTABLISHING MAXIMUM OPERATING PRESSURE FOR  
PACIFIC GAS AND ELECTRIC COMPANY'S NATURAL GAS  
TRANSMISSION LINE 147**

**1. Summary**

This decision authorizes Pacific Gas and Electric Company to operate natural gas transmission Line 147 at a pressure no higher than 330 pounds per square inch gauge.

**2. Description of Pacific Gas and Electric Company's  
Natural Gas Transmission Line 147**

Located along the San Francisco Peninsula, Line 101 runs 34 miles from Milpitas Terminal in Santa Clara County to the San Francisco Gas Load Center in San Francisco. Gas coming into Milpitas Terminal supplies all the customers along the San Francisco Peninsula. Line 101 approximately follows the alignment of Highways 237 and 101.

Line 147 is a 3.8 mile cross-tie that connects Line 101 at mile point 21.54 to Lines 109 and 132, which also serve the San Francisco Peninsula.

### **3. Background**

#### **3.1. Commission Process for Lifting Operating Pressure Reductions**

In D.11-09-006, the Commission adopted an expedited process by which Pacific Gas and Electric Company (PG&E) could request authorization to lift operating pressure restrictions to its natural gas transmission lines. The Commission imposed the operating pressure limitations in response to the rupture and explosion of Line 132 in the City of San Bruno on September 10, 2010.

The Commission also adopted the substantive showing required by PG&E and directed that PG&E's presentation must:

...show that PG&E has gone beyond a rote pressure test by a contractor. We require PG&E to include a responsible engineer's review of the pipeline construction and assessment of the pressure test results. In short, PG&E must be fully accountable for the pressure test and the assertion that the line can be safely operated at the restored MAOP.<sup>1</sup>

Specifically, the Commission required PG&E to submit the following information in support of any request to lift an operating pressure restriction on a natural gas transmission line:

- A. number of segment, general description, location, length of segment, and percent specified minimum yield strength (SMYS) at maximum allowable operating pressure (MAOP).
- B. Maximum operating pressure (MOP) and MAOP for each segment and the entire Line prior to the pressure reduction.

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<sup>1</sup> D.11-09-006, *mimeo* at 13.

- C. Reason for MAOP reduction.
- D. Complete Pressure Test Results for each segment in Class 3 or Class 4 locations or Class 1 or Class 2 High Consequence Areas (HCA) where MAOP will be restored. Explain findings and any actions taken based on results of pressure testing.
- E. MAOP validation records for non-HCA segments where MAOP will be restored.
- F. Proposed MOP and MAOP for each segment and the entire Line and proposed effective date.
- G. Safety Certification. Verified statement from the PG&E officer responsible for gas system engineering that:
  - a. PG&E has validated pipeline engineering and construction;
  - b. PG&E has reviewed pressure test results and can confirm that a strength test was performed on the segment in accord with 49 CFR Part 192, subpart J, or the regulations in effect at the time the pressure test was performed; and
  - c. in the professional judgment of the engineering officer, the system is safe to operate at the proposed MAOP.
- H. Concurrence of the Commission's Consumer Protection and Safety Division.

### **3.2. Commission Decision in 2011 Lifting Operating Pressure Restrictions**

The Commission applied the standards set out above when it reviewed PG&E's request to increase operating pressure on Lines 101, 132A, and 147 in D.11-12-048, adopted on December 15, 2011. In that decision, the Commission found that PG&E had presented pressure test results, supporting information, and the testimony of its responsible engineer verifying that the maximum operating pressure of Lines 101, 132A, and 147 could be safely restored to 365 pounds per square inch gauge (psig).

Part of PG&E's validation process for Lines 101, 132A, and 147 included a pipeline features list showing each component of the pipeline facilities. In the earlier proceeding, PG&E explained that it based its pipeline features list on design plans, as-built drawings, purchase orders, pressure test records, coating information, as well as other available documents. PG&E then reviewed the pipeline features list to establish the maximum pressure for each feature. PG&E relied on its pipeline features list in determining its requested maximum operating pressure of 365 psig.

### **3.3. Correction of Maximum Operating Pressure for Line 147**

As part of a 2012 leak repair, PG&E discovered that certain information used in its 2011 pipeline features list for Line 147 was erroneous. With the correct information reflected in the pipeline features list, the maximum operating pressure for Line 147 was 330 psig, not the 365 approved by the Commission in D.11-12-048.

The timing and means by which PG&E informed the Commission and the parties of this error and correction for Line 147 led to significant controversy that is being addressed elsewhere in this docket. PG&E reduced the operating pressure on Line 147 to 300 psig and in October 2013 reduced it further to 125 psig.

### **3.4. Current Proceeding to Authorize 330 psig Maximum Operating Pressure**

On October 8, 2013, the assigned Commissioner and Administrative Law Judge (ALJ) issued their ruling Directing PG&E to File and Serve an Updated Safety Certification for Line 147. The ruling required PG&E to file and serve the updated Safety Certification no later than October 11, 2013, and that the

statement must conform to the requirements set forth in D.11-09-006 and include any supporting information or analysis not previously provided for the record.

On October 11 and 16, 2013, with a supplement on October 18, 2013, PG&E provided its Supporting Information. PG&E stated that its October 11 submission included the following information:

1. Pipeline Features List for Line 147 mainline pipe;
2. Maximum Allowable Operating Pressure Report for the Line 147 mainline pipe;
3. Pipeline Centerline Survey Results for Line 147 mainline pipe (2.61 miles of 3.98 miles); and
4. Pressure-volume data for the 2011 strength test for Line 147.

The Pipeline Centerline Survey Results were attached to the submission. All other information was included in Exhibit A, which was not attached to the document submitted to the Commission or the parties. PG&E explained that Exhibit A contained sensitive information regarding the location critical infrastructure, the disclosure of which could post a public safety risk. As with similar sets of information prepared for earlier pressure restoration requests,<sup>2</sup> PG&E made this information available for the parties' inspection but not copying.

On October 16, 2013, PG&E provided Additional Supporting Information, consisting of the following:

1. Pipeline Features List for Line 147 shorts (15 smaller diameter pipelines that serve individual customers);
2. Maximum Allowable Operating Pressure Report for the Line 147 shorts;

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<sup>2</sup> See, e.g., D.11-12-048, *mimeo.* at 4.

3. Pipeline Centerline Survey Results for the remaining 1.37 miles of Line 147 mainline pipe; and
4. Safety Certification of PG&E engineering officer.

The Pipeline Centerline Survey Results and the Engineering Officer's Safety Certification were attached to the document submitted. As with the October 11 submission, the specific pipeline information was made available to the parties for inspection but not copying as part of Exhibit B to the request to lift operating pressure limitation.

On October 21, 2013, the assigned Commissioner and ALJ convened a prehearing conference to set the procedural schedule for the Line 147 issues. PG&E explained that Line 147 was "shut in;" that is, no gas was flowing through the pipeline and pressure was being maintained at 125 psig. PG&E agreed to voluntarily limit pressure to 125 psig pending further order of the Commission, and the Commission's Safety and Enforcement Division (SED) recommended that PG&E also remove the "shut in" requirement.<sup>3</sup>

As required by D.11-09-006, SED reviewed the Supporting Information provided by PG&E. In a report dated November 14, 2013, SED explained its detailed review of PG&E's Supporting Information and investigation of the leak found and repaired on segment 109 of Line 147 and concluded that it had found no issues that would prevent the Commission from authorizing PG&E to operate Line 147 at 330 psig.

On October 18, 2013, PG&E filed and served a supplement to an earlier Verified Statement of the Vice President of Gas Transmission Maintenance and Construction. This supplement included up-to-date reports on PG&E's efforts to

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<sup>3</sup> Transcript at 68 – 72.

validate the MAOP of Line 147, and showed the results of revised SMYS tabulations. PG&E also included in this Supplement a report from Kiefner & Associates, authored by Michael J. Rosenfeld, P.E., on the fitness for service of Line 147. This report reached the following conclusions:

1. PG&E has substantial knowledge of the type of pipe, construction features, and appurtenances present in Line 147. Data from metallurgical examination of a leak that occurred in 2012 suggests that the affected pipe was reconditioned first-generation A.O. Smith line pipe. Records indicate that such pipe was shipped to the site in 1957, although it is not listed in the PFL, confirming that the database is not perfect. However, this does not cause a great deal of concern because of item 2 below.
2. The October 2011 hydrostatic pressure spike test confirmed the fitness for service of the pipeline for its MAOP without doubt. The concept of pressure testing to establish the ability of a pipeline to safely hold pressure at a lower pressure is an accepted practice that is logical and supported by industry experience and research. NTSB and PHMSA have recommended and required, respectively, hydrostatic pressure testing to revalidate pipeline operating pressures. The test was performed to a sufficient margin to assure the integrity of the pipeline well into the future assuming routine maintenance practices such as cathodic protection monitoring and damage prevention continue to be implemented.<sup>4</sup>
3. A review of data concerning pipeline integrity threats provides no evidence that the integrity or fitness for service of Line 147 has degraded in the two years since the October 2011 hydrostatic tests were conducted.

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<sup>4</sup> Supplemental Declaration of Sumeet Singh, Exhibit F, Letter Report from Michael Rosenfeld, PE, Chief Engineer, Kiefner and Associates (October 18, 2013).

The Rosenfeld report continued on with detailed discussions of the bases for the conclusions.

The Office of Ratepayer Advocates presented written direct testimony of its Senior Engineer, included in the formal record as Evidentiary Hearing Exhibit P, which raised issues with the completeness of PG&E's pressure test results and the reliability of its natural gas transmission system records. The Advocacy portion of SED also presented direct written testimony of its outside consultant which questioned PG&E's ability to perform a root cause analysis of the 2012 leak in Line 147, and the system-wide disarray of PG&E's pipeline records. This report is Evidentiary Hearing Exhibit O.

The City of San Carlos presented written testimony of its expert, Dr. Glen Stevick, included in the formal evidentiary record as Exhibit S. Dr. Stevick concluded that a fracture assessment needs to be completed to enable PG&E to determine an allowable operating pressure and set the time table for retesting Line 147. Dr. Stevick recommended that PG&E's database be further corrected, and appropriate operating pressure be determined based on the consideration of all failure modes including fracture, appropriate remaining life calculations performed and made available to PG&E engineering and all regulatory bodies, and complete fracture testing be performed on materials available from repairs. Dr. Stevick sought an end-to-end proof test that PG&E had hydrotested the entire Line 147. Dr. Stevick concluded that without knowing the accuracy of the pipeline database, it becomes difficult to determine an accurate safe operating pressure. Dr. Stevick also reviewed PG&E's metallurgical test of the portion of Line 147 removed with the leak repair and found no evidence of crack growth during hydrotesting or during service, and



that the leak resulted from a faulty repair weld. Dr. Stevick sought additional information from PG&E to finalize his assessment.

On October 18, 2013, PG&E presented its Vice President of Gas Transmission Maintenance and Construction, Senior Director of Integrity Management in Gas Operations, and Mr. Rosenfeld from Kiefner & Associates for cross-examination by the parties. The witnesses answered questions from the parties, and it became clear that the parties required additional clarification on the technical details of the testimony offered by PG&E.

On October 19, 2013, PG&E convened a workshop at its offices to further explain and provide documentation of the Supporting Information to the parties.

On October 20, 2013, the evidentiary hearing resumed and the parties explained that their technical questions had been substantially resolved, and that no party disputed PG&E's pressure test results that are required by D.11-09-006.<sup>5</sup> Parties did, however, raise issues regarding PG&E's Procedure for Resolving Unknown Pipeline Features, which was approved by the Commission in D.12-12-030, and is currently before the Commission in PG&E's update application, filed on October 29, 2013. The parties were invited to pursue these issues in the update application proceeding.

At the conclusion of cross-examination, the hearing was concluded and the issue of restoring the pressure on Line 147 was submitted for consideration by the Commission. With the submission of late-filed exhibits, the record was closed.

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<sup>5</sup> Transcript at 2719.

**4. Discussion**

Pursuant to Public Utilities Code Section 451 each public utility in California must:

Furnish and maintain such adequate, efficient, just and reasonable service, instrumentalities, equipment and facilities, ...as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

The duty to furnish and maintain safe equipment and facilities falls squarely on California public utilities, including PG&E. The burden of proving that particular facilities are safe also rests with PG&E.

PG&E's voluntary restrictions on Line 147 are consistent with Commission's safety objectives. In D.11-09-006, the Commission set forth the specific requirements for PG&E to demonstrate that the operating pressure restrictions can safely be removed and we will use these requirements to evaluate PG&E's proposed pressure restorations. These requirements begin with a pressure test complying with regulations applicable when conducted, and also require a responsible engineer's review of the pipeline construction and assessment of the pressure test results to ensure safe operations. The end result is that PG&E must be fully accountable for the pressure test and the assertion that the line can be safely operated at the maximum operating pressure ordered by the Commission.

**4.1. Maximum Operating Pressure Validation**

PG&E based its validation process for Line 147 by revising and correcting its 2011 pipeline features list. Overall, PG&E based its pipeline features list on design plans, as-built drawings, purchase orders, pressure test records, coating information, as well as other available documents. For Line 147, however, PG&E also had substantial amounts of additional data resulting from the 2012 leak

repair, excavation, pipe extraction, and testing. As presented by its witnesses, and confirmed by its outside expert from Kiefner & Associates, PG&E is using documentary evidence for the majority of its components and where it does not have verified evidence is using “conservative but realistic assumptions” to establish the maximum pressure for each feature.<sup>6</sup>

PG&E presented the Maximum Allowable Operating Pressure Report for Line 147, including shorts, as well as the pressure-volume data for the line. PG&E’s outside expert stated that: “Line 147 was tested in October 2011 to a minimum spike test pressure of 669 psig followed by a minimum 8-hour hold of 607 psig. The 8-hour test qualifies Line 147 to operate with a MAOP of 400 psig in accordance with regulations.”<sup>7</sup>

SED has examined PG&E’s supporting information and found that PG&E’s activities were consistent with proper maximum allowable operating pressure validation.

As set forth below, PG&E has presented supporting documents including pipeline features lists and pressure test results supporting its assertion that Line 147 can be safely operated with a maximum operating pressure of 330 psig:

Requirement from D.11-09-006	PG&E Presentation
Number of Segment, general description, location, length of segment, and percent specified minimum yield strength (SMYS) at MAOP	Pipeline Features List for Line 147 mainline pipe, Exhibit A  Pipeline Features List for Line 147 shorts, Exhibit B
MOP and MAOP for each segment and the entire Line prior to the pressure reduction.	Included in pressure/ volume data for 2011 strength tests for Line 147

<sup>6</sup> Kiefner & Associates Letter at 3.

<sup>7</sup> Id. at 4.

Reason for MAOP reduction.	Explained in Verified Statement filed and served on August 30, 2013
Complete Pressure Test Results for each segment in Class 3 or Class 4 locations or Class 1 or Class 2 High Consequence Areas where MAOP will be restored. Explain findings and any actions taken based on results of pressure testing.	Exhibit A, provided to SED, ORA, and other parties after signing nondisclosure agreement on October 11, 2013. Additional information and explanation presented at November 19, 2013, workshop.
MAOP validation records for non-HCA segments where MAOP will be restored.	Exhibit A, for Line 147 mainline pipe, and Exhibit B, provided to SED, ORA, and parties signing nondisclosure agreement, on October 16, 2013, for Line 147 shorts
Safety Certification. Verified statement from the PG&E officer responsible for gas system engineering that: a. PG&E has validated pipeline engineering and construction; b. PG&E has reviewed pressure test results and can confirm that a strength test was performed on the segment in accord with 49 CFR Part 192, subpart J, or the regulations in effect at the time the pressure test was performed; and c. in the professional judgment of the engineering officer, the system is safe to operate at the proposed MAOP.	Filed and served October 16, 2013 Supplemented by Rosenfeld Report filed on October 18, 2013
Concurrence of the Commission's Safety and Enforcement Division.	Submitted on November 14, 2013 <sup>8</sup>

#### **4.2. Responsible Engineer's Review**

PG&E's Vice President of Gas Transmission, Maintenance, and Construction, testified under oath that PG&E's engineers have validated the engineering and construction through records review, as documented in the exhibits to the supporting information. PG&E's Vice President testified that for

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<sup>8</sup> SED's report will be included in the evidentiary record as late-filed Exhibit V.

all transmission pipeline segments and components on Line 147 operating at or above 20% SMYS, PG&E has either located prior pressure test records, administered in accordance with the applicable standards at the time, or successfully pressure-tested in accord with 49 CFR Part 192 , subpart J at pressure above that necessary to confirm the safe operation of Line 147 at a MOP of 330 psig, with an additional margin of safety.

PG&E's Vice President concluded that in his professional judgment, Line 147 was safe to operate at 330 psig.

We, therefore, find that PG&E's responsible engineer has reviewed the engineering and construction of the segments, as well as the results of the pressure tests, and concluded that the MOP may be safely restored to 330 psig. The engineer's assessment has been further supported by the conclusions quoted above from the Rosenfeld report.

#### **4.3. PG&E is Accountable for Safe Operations at Increased Maximum Operating Pressure**

PG&E operates a natural gas transmission and distribution system. As the operator, PG&E must ensure that the system is operated safely. PG&E presented pressure test results, supporting information, and the testimony of its responsible engineer verifying that the MOP of Line 147 could be safely operated at up to 330 psig.

#### **4.4. Conclusion**

As set forth above, PG&E has fulfilled the requirements set forth in D.11-09-006. Therefore, we conclude that PG&E has demonstrated that the MOP of Line 147 can be safely restored to 330 psig.

**5. Reduction of Comment Period**

Pursuant to an expedited schedule as authorized by D.11-09-006, parties were allowed to file and serve comments on December 13, 2013. Comments were submitted by the City of San Carlos and ORA. Both the City and ORA advanced the proposition that the Commission's 2011 decision requiring that all natural gas transmission lines in California be pressure tested or replaced also mandated that these lines become subject to the federal requirements for post-1970 gas transmission lines addressed in 49 CFR, Part 192, Section 192.619(a). Neither party, however, provided a citation to such a Commission directive in the 2011 decision, and the Commission's subsequent decisions have not applied that subsection to California pipeline pressure tested pursuant to the 2011 decision. That subsection is applicable to pipelines installed beyond the effective date of these regulations since all pipelines are expected to be designed per these regulations. The Commission adopted a specific pipeline features analysis methodology for PG&E to use in its Pipeline Safety Enhancement Program with the older in-service pipeline.

San Carlos explained that using the federal requirements would result in a more conservative maximum allowable operating pressure of 240 psig. San Carlos criticized the Proposed Decision for implying that "passing a hydrotest is more important to the regulators than knowing what's actually in the ground."<sup>9</sup>

The record in this proceeding, however, includes expert testimony supporting that precise conclusion. Where complete knowledge of strength

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<sup>9</sup> San Carlos Comments at 5.

testing to subpart J standards is not available for each segment, available records supplemented with conservative estimates can be used to prioritize these untested segments for interim safety measures and strength testing. Even though complete records for each pipeline segment may not be available, passing a properly conducted hydrotest confirms a pipeline's fitness for service "without doubt," concluded the Rosenfeld report, as quoted in detail above.

ORA argued that PG&E's 2011 pressure test results needed to be incorporated into the evidentiary record for future review, rather than made available to the parties for inspection or subject to a nondisclosure agreement. As noted above, these records contain sensitive location information regarding critical facilities which are not generally available to the public. Moreover 49 CFR, Part 192, Section 192.517 requires that PG&E retain these records for the life of the facility.

San Carlos also requested that Line 147 be prioritized for replacement within 10 years. PG&E's Pipeline Safety Enhancement Program was approved by the Commission in D.12-12-030 and prioritized hundreds of pressure testing and replacement projects, including the pressure testing of Line 147. This Program is the subject of an update proceeding recently filed by PG&E, and future replacement plans will be considered in subsequent General Rate Cases..

## **6. Assignment of Proceeding**

Michel Peter Florio is the assigned Commissioner and Maribeth A. Bushey is the assigned ALJ in this proceeding.

## **Findings of Fact**

1. PG&E reduced pressure on Line 147 to 125 psig.

2. On October 11 and October 16, 2013, PG&E presented its pipeline features list, maximum pressure analysis, and pressure test results for Line 147 as part of its Supporting Information required by D.11-09-006.

3. PG&E's Vice President of Gas Transmission, Maintenance, and Construction, verified that PG&E has validated the engineering and construction of, and performed pressure tests in accordance with 49 CFR 192 Subpart J or the pressure test requirements then in effect, on all segments of Line 147 that will be operating at or above 20% of SMYS, and concluded that these pipelines could be safely operated at the restored MOP of 330 psig.

4. PG&E retained the services of an outside expert to review its pressure testing of Line 147, and the expert concluded that Line 147 is fit for service at an MAOP in excess of that being sought by PG&E.

5. SED reviewed PG&E's supporting information and concluded that the information presented was adequate to support the conclusion that pressure on the lines could be safely restored to 330 psig.

6. SED investigated the information related to PG&E's 2012 leak repair and found no evidence that would limit PG&E's safe operation of Line 147 to below 330 psig.

### **Conclusions of Law**

1. PG&E has complied with the Supporting Information requirements of D.11-09-006.

2. PG&E has demonstrated that transmission pipe segments and components on Line 147 operating at or above 20% of SMYS have been successfully pressure tested in accordance with 49 CFR 192 Subpart J or the pressure test requirements in effect at the time of the test.

3. The MOP on Line 147 can safely be restored to 330 psig.



4. The Commission should use the special process adopted in D.11-09-006 for comment.
5. This decision should be effective immediately.

**O R D E R**

Therefore, **IT IS ORDERED** that:

1. Pacific Gas and Electric Company may operate natural gas transmission Line 147, with associated shorts, with a maximum operating pressure of 330 pounds per square inch gauge.

2. Pacific Gas and Electric Company must operate Line 147 in accord with applicable state and federal law and regulations. Should such law and regulations require a decreased maximum operating pressure, Pacific Gas and Electric Company shall provide written notice to the parties to this proceeding within 30 days.

3. Rulemaking 11-02-019 remains open.

This order is effective today.

Dated \_\_\_\_\_, at San Francisco, California.